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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,218	09/25/2003	Chan-Yul Kim	5000-1-449	8233

33942 7590 05/14/2007  
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EXAMINER
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MALKOWSKI, KENNETH J

ART UNIT	PAPER NUMBER
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2613

MAIL DATE	DELIVERY MODE
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05/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/671,218

Applicant(s)

KIM ET AL.

Examiner

Kenneth J. Malkowski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 March 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 7, 10 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,778,550 to Blahut et al.

With respect to claims 1 and 10, Blahut discloses a subscriber optical distributor (Figure 5) for a broadcasting-telecommunications convergence service (column 1 lines 59-65 (data in both directions includes video, data and digitized voice)) over an FTTH (Fiber To The Home) optical transmission network (column 1 lines 61-65 (Fiber-to-the-home communication system))(Figure 1), said distributor comprising: an optical transceiver (Figure 5) configured to receive an optical TDM (Time Division Multiplex)(column 4 lines 47-52 (downstream data is transmitted in a TDM fixed frame format))(incoming TDM signal is optical until photodiode 504, Figure 5) broadcasting-telecommunications signal (column 11 lines 49-59 (optical downstream data includes broadcast and telephone data)), to convert the optical broadcasting-telecommunications signal to an electrical broadcasting-telecommunications signal (504, Figure 5 (photodiode)), and to convert an uplink electrical signal received from a subscriber to an optical signal (Figure 5 (electrical signal for upstream ranging and burst control is sent to

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laser 517 for conversion to optical)); a broadcasting/telecommunications signal distributor configured to receive the electrical broadcasting-telecommunications signal (electrical signal emanating from unit 505 in Figure 5) configured to separate the received broadcasting-telecommunications electrical signal into a separate broadcasting signal (electrical signal entering video interface 508, Figure 5), and a separate telecommunications signal (electrical signal entering telephone interface 509, Figure 5) and configured to output the separated broadcasting signal and the separated telecommunications signal to separate destinations (the separated broadcasting signal is sent to a television cable box as shown in 111, Figure 1 while the separated telecom signal is sent to a telephone 107, Figure 1); a broadcasting interface for interfacing with the broadcasting signal received from the broadcasting/telecommunications signal distributor (508, Figure 5 (video interface)); and a telecommunications interface for interfacing with the telecommunications signal received from the broadcasting/telecommunications signal distributor (509, Figure 5 (telephone interface)), and providing the uplink signal to the optical transceiver (Figure 5).

With respect to claims 7 and 16, Blahut discloses the subscriber optical distributor of claim 1, wherein the broadcasting/telecommunications signal distributor receives the broadcasting-telecommunications signal from the optical transceiver, extracts time frame data and a clock signal of TDM (column 11 lines 40-50 (circuit 505 detects downstream broadcasting/telecommunications signal and recovers clock from a clock and data recovery circuit)) from the received broadcasting-telecommunications signal (column 6 lines 53-59 (timing for upstream frames is derived from downstream data)), and separating the time frame data into broadcasting data and Ethernet packet data (column

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11 lines 50-62 (circuit 505 then determines which received cells are being broadcast and which are directed to that particular ONU. Ethernet interface 507 and broadcast interface 508 then accept the data that belongs to them))(column 13 lines 45-49 (ATM cells or IP packets can be used as the type of data formatting used in this invention)).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,778,550 to Blahut et al. in view of U.S. Patent No. 7,127,167 to Sala et al.

With respect to claims 2 and 11, Blahut discloses the subscriber optical distributor of claim 1, however, Blahut does not specifically disclose a broadcasting controller for selecting specific channels. Despite this, broadcasting controllers are notoriously well known in the art and is cannot be considered a patentable limitation. Sala, from the same field of endeavor similarly discloses a fiber to the home optical transmission system using time division multiplexing (title) wherein a broadcasting controller is used (column 13 lines 26-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to implement the broadcasting controller as disclosed by Sala into the FTTH transmission system as disclosed by Blahut. The motivation for doing so would have been the obvious desire for the ability to readily control what information is accessed (Sala: column 13 lines 26-29).

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5. Claims 3, 5, 9, 12, 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,778,550 to Blahut et al. in view of U.S. Patent Application Publication No. 2003/0016692 to Thomas et al.

With respect to claim 3 and 12, Blahut discloses the subscriber optical distributor of claim 1, however fails to disclose said distributor is implemented as VCSEL (Vertical Cavity Surface Emitting Laser) transceiver. Thomas, from the same field of endeavor discloses a FTTH optical transmission system (page 1 paragraph 3) wherein each transceiver node (120, figure 3 (transceiver node)) is implemented as a VCSEL (Vertical Cavity Surface Emitting Laser) transceiver (page 7 paragraph 73). Therefore, it would have been obvious to one of ordinary skill in the art to implement a VCSEL transceiver into the FTTH system as taught by Blahut. This is because Thomas teaches that such a selection is a mere design choice with multiple other functionally equivalent alternatives such as FP lasers and DFB lasers (page 7 paragraph 73).

With respect to claims 9 and 18, Blahut in view of Thomas disclose the subscriber optical distributor of claim 3, wherein the broadcasting/telecommunications signal distributor receives the broadcasting-telecommunications signal from the optical transceiver, extracts time frame data and a clock signal of TDM from the received broadcasting-telecommunications signal using an internal PLL (Phase Locked Loop) (Blahut: column 11 lines 40-50 (circuit 505 detects downstream broadcasting/telecommunications signal and recovers clock from a clock and data recovery circuit, CDR circuits inherently include a PLL mechanism)) and separating the time frame data into broadcasting data and Ethernet packet data (Blahut: column 11 lines 50-62 (circuit 505 then determines which received cells are being broadcast and which are directed to

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that particular ONU. Ethernet interface 507 and broadcast interface 508 then accept the data that belongs to them))(column 13 lines 45-49 (Blahut: ATM cells or IP packets can be used as the type of data formatting used in this invention)).

With respect to claims 5 and 14, Blahut in view of Thomas discloses the subscriber optical distributor of claim 3, wherein the VCSEL transceiver (Thomas: page 7 paragraph 73 (VCSEL) comprises: an analog broadcasting receiver (Blahut: column 11 lines 57-67 (broadcast signal is sent to an analog television set)) a broadcasting-telecommunications signal receiver having PIN-PD (504, figure 5), for receiving the TDM broadcasting-telecommunications signal (column 1 lines 59-65 (data in both directions includes video, data and digitized voice)); and a transmitter (Blahut: 517, figure 5 (laser)) for an Ethernet uplink (Blahut: column 12 lines 26-40 (output from Ethernet interface is sent upstream)). Despite the fact that Blahut in view of Thomas do not specifically disclose one photo diode for each interface shown, the setup taught by Blahut in view of Thomas with one photo-diode for two interfaces is functionally equivalent in that both interfaces still receive individual electrical signals from a single optical signal. They are merely separated at different points. Furthermore both low noise and trans-impedance amplifiers are notoriously well known in the art as an advantageous element in combination with electro-optic receiver systems. Therefore it would have been obvious to one of ordinary skill in the art to implement either of said amplifiers to the reception system of Blahut in view of Thomas. The motivation for doing so would have been to reduce the amount of received signal noise.

6. Claims 4, 6, 8, 13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,778,550 to Blahut et al. in view of U.S. Patent No.

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7,127,167 to Sala et al. and further in view of U.S. Patent Application Publication No. 2003/0016692 to Thomas et al.

With respect to claims 4 and 13, Blahut in view of Sala discloses the subscriber optical distributor of claim 2, however, Blahut in view of Sala fail to disclose said distributor is implemented as VCSEL (Vertical Cavity Surface Emitting Laser) transceiver. Thomas, from the same field of endeavor discloses a FTTH optical transmission system (page 1 paragraph 3) wherein each transceiver node (120, figure 3 (transceiver node)) is implemented as a VCSEL (Vertical Cavity Surface Emitting Laser) transceiver (page 7 paragraph 73). Therefore, it would have been obvious to one of ordinary skill in the art to implement a VCSEL transceiver into the FTTH system as taught by Blahut. This is because Thomas teaches that such a selection is a mere design choice with multiple other functionally equivalent alternatives such as FP lasers and DFB lasers (page 7 paragraph 73).

With respect to claims 6 and 15, Blahut in view of Sala and further in view of Thomas discloses the subscriber optical distributor of claim 3, wherein the VCSEL transceiver (Thomas: page 7 paragraph 73 (VCSEL) comprises: an analog broadcasting receiver (Blahut: column 11 lines 57-67 (broadcast signal is sent to an analog television set)) a broadcasting-telecommunications signal receiver having PIN-PD (504, figure 5), for receiving the TDM broadcasting-telecommunications signal (column 1 lines 59-65 (data in both directions includes video, data and digitized voice)); and a transmitter (Blahut: 517, figure 5 (laser)) for an Ethernet uplink (Blahut: column 12 lines 26-40 (output from Ethernet interface is sent upstream)). Despite the fact that Blahut in view of Thomas do not specifically disclose one photo diode for each interface shown, the setup



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taught by Blahut in view of Thomas with one photo-diode for two interfaces is functionally equivalent in that both interfaces still receive individual electrical signals from a single optical signal. They are merely separated at different points. Furthermore both low noise and trans-impedance amplifiers are notoriously well known in the art as an advantageous element in combination with electro-optic receiver systems. Therefore it would have been obvious to one of ordinary skill in the art to implement either of said amplifiers to the reception system of Blahut in view of Thomas. The motivation for doing so would have been to reduce the amount of received signal noise.

With respect to claims 8 and 17, Blahut in view of Sala discloses the subscriber optical distributor of claim 1, wherein the broadcasting/telecommunications signal distributor receives the broadcasting-telecommunications signal from the optical transceiver, extracts time frame data and a clock signal of TDM (Blahut: column 11 lines 40-50 (circuit 505 detects downstream broadcasting/telecommunications signal and recovers clock from a clock and data recovery circuit)) from the received broadcasting-telecommunications signal (Blahut: column 6 lines 53-59 (timing for upstream frames is derived from downstream data)), and separating the time frame data into broadcasting data and Ethernet packet data (Blahut: column 11 lines 50-62 (circuit 505 then determines which received cells are being broadcast and which are directed to that particular ONU. Ethernet interface 507 and broadcast interface 508 then accept the data that belongs to them))(column 13 lines 45-49 (Blahut: ATM cells or IP packets can be used as the type of data formatting used in this invention)).

*Response to Arguments*

7. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. On page 9, paragraph 2 of applicants' remarks, applicant states that none of the interfaces in Blahut perform newly added claim language including separating broadcast and telecom signals and outputting said separated telecom signals to separate destinations. However, in claim 1 the claimed interface is never meant to perform signal separation, but rather receive signals from a broadcasting/telecom signal distributor. Lines 14-15 of claim 1 state, "a broadcasting interface configured to interface with the broadcasting signal received from the broadcasting/telecom signal distributor." Blahut does in fact clearly show broadcasting and telecom interfaces (508, 509 Figure 5) which receive respective broadcast and telecom signals from a broadcasting/telecom signal distributor (505, Figure 5).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

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advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to show the state of the art with respect FTTH systems in general:

U.S. Patent Application Publication No. 20030011842 is cited to show an FTTH

U.S. Patent No. 6,895,185 is cited to show a multi-purpose fiber access network

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Malkowski whose telephone number is (571) 272-5505. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KJM 4/30/07



KENNETH VANDERPUYE  
SUPERVISORY PATENT EXAMINER